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when the sun sets them on fire, she fans the flames with her wings, and burns herself; and out of the ashes arises a small maggot, which becomes another Phœnix."

OV. MET. XV. 392.

Pliny says the phœnix lives three hundred and forty years; others, four hundred and sixty; but according to most writers five hundred years. Tertullian, Ambrose, and Zeno, cite this bird as a rational argument of a resurrection; whereas it is no more than a cycle of the Chaldeans, Assyrians, and our Hibernian Brahmins; a name composed of the Chaldean astronomical numerals, as shall be shown in the following part of this essay.

Mr. Maurice has proved that this period of six hundred years, and that of nineteen, was known to the Brahmins. Cassini speaks in raptures of this cycle, and says, no intimation is to be found of it in the remaining monuments of any other ancient nation, except the ancient Hebrews; and that it is the finest period ever was invented, since it brings out the solar year more exactly than that of Hipparchus; for in this period the sun and moon return to the same situation in the heavens in which they were at the commencement of that cycle. Josephus, from the traditions of his nation, asserts it to have been known to the Antediluvians, and is stated by him to have been their *annus magnus*, or great year.

"One of the characters attributed to the great year," says Boulanger, "was the Phœnix, an apocalyptic dogma, enveloped in an allegory become by its fable unintelligible. Pluche derives the name from the Phœnician word *phanag*, to be in delight and abundance; but it is more rational to draw it from *phanah*, pronounced *phanach*, which signifies to return; and this agrees better with the story of the phœnix, which might be expressed by *ophen* a wheel; or rather by *phonch*, that which returns or turns round." Boulanger is near the truth; for in Irish *phainie* is a circle or ring; hence it signifies an eagle, or any great bird that flies in circles, as those birds do; whence the Egyptian *phench*, a cycle, a period, an age. The word also signifies a raven, for the above reason; whence the raven became sacred in the eastern countries, and of great request in the Mithratic mysteries.

The Phœnix of Japan is called *Kirin* says Herbelot, which is the *Cruin* or cycle of our Druids. "The Phœnix," continues Boulanger, "is nothing more than a cyclic symbol, which has been personified like Mithras, and many others, to whom in aftertimes they adapted histories applicable to the opinions the ancients entertained of these periods: the multitude of these cyclic deities has given great room for fable, and led many antiquaries astray, and gave room for astronomical mysteries that never entered the heads of the original authors."

(To be Continued in our next.)

For the Belfast Monthly Magazine.

ON THE CULTURE OF ONIONS.

FARMING, on a large scale, has become of late years extremely fashionable; and most of the plans for improving land which have been laid before the public, are such as could be applied only to the cultivation of extensive tracts of land: the newly invented machines by which much manual labour and time are saved, are too expensive to be made use of by the farmer who holds but a few acres. Yet perhaps it will be found that this practice now so prevalent, of increasing the extent and diminishing the number of farms is far from being advantageous to the country at large. It is always impolitic, and in many instances impracticable....impolitic for the following reasons: it lessens the population through the country, and thus drives numbers to seek employment in the towns, a practice which it ought to be the care of every friend to good order and morality to check by every possible means. It puts the purchaser at the mercy of the great landholders; for let us suppose the lands in the neighbourhood of a large town in the possession of a few individuals, these, by coming to an understanding with each other, can regulate the markets at their pleasure: On the contrary, if the same ground be parcelled out into a number of smaller plots, the holder of each will be obliged to part with his produce in order to supply his own wants, the prices will be proportionate to the quantity of goods to be disposed of, not to the will of the

landholder, and the market will always keep its proper level. The opinion generally received that large farms are best tilled, is not always correct. The contrary is remarked by Goldsmith. When he paints in such vivid colours the evils and miseries resulting from the injudicious union of small farms, he uses the following energetic expression...

“ And half a tillage stints the smiling plain.”

It is a well known fact, that the barony of Forth, and great part of the county of Armagh, probably the most highly cultivated tracts of land in this kingdom, are parcelled out into small portions. But, setting aside the impolicy, it is in many cases impracticable. Near large towns the ground must inevitably be very much subdivided, and in many country parts, the long-established rights of the lower tenantry prevent them from being thus sacrificed to the avarice or vanity of a speculating landlord.

It may therefore be by no means useless to turn our thoughts from the extensive plans of modern improvers, to a consideration at least equally useful though now not generally attended to; the mode of culture which will render small farms most productive. There is none more worthy of attention than that practised in some of the Southern parts of Ireland, of which the culture of onions constitutes a principal part. The value of this crop upon a small scale must be well known to every one who is in possession even of a garden. The writer of this has lately known thirty guineas refused for the produce of a small garden not containing in the whole more than half an acre, part of which was occupied by fruit-trees and esculent vegetables for family use. A gentleman in the county of Down who holds a large farm in his own hands, has averred, that on one occasion the produce of an acre produced one hundred pounds, and he reckons it a bad crop that does not bring sixty pounds. In this we must also take into consideration that the expenses of weeding and cleaning are cleared by the small onions plucked up to thin the beds. In the vicinity of a large town it is peculiarly advantageous, because there the produce is

always sure of a ready sale, and manure which is absolutely necessary, is easily procured. The following mode of cultivation as practised in one of the Southern provinces is recommended by a very intelligent practical agriculturalist, and has, I believe, appeared in some publications.

The farm is generally divided into four equal portions, in which the following succession of crops is maintained. First, onions; second, potatoes; third, barley; fourth, clover. All the manure that can be procured is given to the onions, and none is found to answer better than street sweepings. Indeed the utility of this, as a manure, is now so well known that vessels from the coasts of the county of Down, after discharging their cargo in Dublin, return freighted with this instead of ballast, and the lands near the sea on which it is bestowed, fully repay the charges thus incurred. The onions are to be sown in the beginning of March, in beds from five to six feet wide, and to prevent any risk of failure, a quantity of parsnip, amounting to about one-third part of the onion and a small quantity of cabbage-seed are sown in with it. On weeding, if the onions have succeeded completely, the parsnips are weeded out. If there be any failure, wherever a space of three inches is without an onion, there a parsnip is suffered to remain. After the weeding, the alleys between the beds are dug, and the weeds buried in them, the cabbage is planted out in the furrows; and the parsnips which have been suffered to remain, grow to their full size, without interfering with the principal crop.

By this mode of treatment the ground is highly manured for the potatoe crop, and the farmer has sufficient green food in the clover for a cow and horse; those who have tried this experiment know also that though the cost of manuring and tilling the onion crop is very great, the barley produced by the remaining part will cover the whole expense. The only real risk is the failure of the onion seed; this it must be confessed, is by no means unfrequent, but is mostly owing to the neglect of procuring seed of a good quality. Those persons who have attended to the

culture of onions, generally procure their seed from London; but it is by no means improbable, that by care in sowing the seed at home, as is done by some farmers with flax, it may be had as good as that which is imported, and at little or no expense.

S. T.

For the *Belfast Monthly Magazine*.

OF BURNING MIRRORS.

From *Oznanah's Mathematical Recreations*.

THE properties of burning mirrors may be deduced from the following proposition, viz. "If a ray of light fall very near the axis of a concave spherical surface, and parallel to that axis, it will be reflected in such a manner, as to meet it at a distance from the mirror, nearly equal to half the radius." At that distance, the solar rays, which are sensibly parallel when they fall on a concave surface, will be there condensed, if not into one point, at least into a very small space, where they will produce a powerful heat, so much the stronger, as the breadth of the mirror is greater. For this reason the place where the rays meet is called the *focus*, or burning point.

The focus of a concave mirror, is not, however, a mere point: it has, on the contrary, a pretty sensible magnitude. Thus, for example, if a mirror be the portion of a sphere of six feet radius, and form an arc of thirty degrees, which gives a breadth of somewhat more than three feet, its focus ought to be about the fifty-sixth part of that size, or between seven and eight lines. The rays, therefore, which fall on a circle of three feet diameter, will, for the most part, be collected into a circle of a diameter fifty-six less, and which consequently is only the 3136th part of the space, or surface. It may hence be easily conceived what degree of heat such mirrors must produce, since the heat of boiling water is only *triple* that of the direct rays of the sun on a fine summer's day.

Attempts, however, have been made to construct mirrors, which collect all the rays of the sun into one point, and experiment has ascertained, that this may be effected by a well polished

parabolic spheroid, and a much greater degree of heat be procured.

As the focus of a spherical mirror is at the distance of the fourth part of the diameter, or (as above) one half the radius, the impossibility of Archimedes being able with such a mirror, to burn the Roman ships, supposing their distance to have been only thirty paces, as Kircher says, he remarked, when at Syracuse, may be easily conceived; for it would have been necessary, that the sphere of which his mirror was a portion, should have had a radius of sixty paces, and to construct such a sphere would have been impossible. A parabolic mirror would be attended with the same inconvenience.

Besides, the Romans must have been wonderfully *condescending*, to suffer themselves to be burnt so near, without deranging the machine. If the mathematician of Syracuse therefore did burn the ships of the Romans by means of the solar rays, he must have succeeded in some other way; and such a way has been rendered probable by an experiment conducted by Buffon, which any one may try for himself by following these directions.

Arrange a great number of plane mirrors, each about six or eight inches square, in such a manner, that the solar rays, reflected from them may be united in one focus.

Anthemius of Tralles, the architect and engineer, who lived under Justinian, is the first, who according to the account of Vitellio conceived the idea of employing plane mirrors for burning: but it is to Buffon we are indebted for a proof of its being practicable. In the year 1747, he caused to be constructed a machine consisting of three hundred and sixty plane mirrors, each eight inches square, and all moveable on hinges, in such a manner, that they could be made to assume any position at pleasure. By means of this machine he was able to burn wood at the distance of two hundred feet.

That the ancients made use of burning glasses is evident, from a passage in a play of Aristophanes, called the Clouds, where Strepsiades tells Socrates, that he had found out an excellent method to defeat his creditors, if they